



# ICAO ENGINE EXHAUST EMISSIONS DATA SHEET

## SUBSONIC ENGINES

ENGINE IDENTIFICATION: CFM56-5B3/3  
UNIQUE ID NUMBER: 01P08CM104  
COMBUSTOR: Tech Insertion  
ENGINE TYPE: TF

BYPASS RATIO: 5.4  
PRESSURE RATIO ( $\pi_{00}$ ): 32.6  
RATED THRUST ( $F_{00}$ ) (kN): 142.3

### REGULATORY DATA

CHARACTERISTIC VALUE:	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
D <sub>p</sub> /F <sub>00</sub> (g/kN) or SN	1.7	36.2	51.2	17.6
AS % OF ORIGINAL LIMIT	8.5	30.7	48.7	81.9
AS % OF CAEP/2 LIMIT (NO <sub>x</sub> )			60.8	
AS % OF CAEP/4 LIMIT (NO <sub>x</sub> )			72.0	
AS % OF CAEP/6 LIMIT (NO <sub>x</sub> )			79.8	
AS % OF CAEP/8 LIMIT (NO <sub>x</sub> )			92.6	

For non-volatile particulate matter (nvPM) emissions, please refer to the ICAO Engine nvPM Emissions Data Sheet.

### DATA STATUS

- PRE-REGULATION  
x CERTIFICATION  
- REVISED (SEE REMARKS)

### TEST ENGINE STATUS

x NEWLY MANUFACTURED ENGINES  
- DEDICATED ENGINES TO PRODUCTION STANDARD  
- OTHER (SEE REMARKS)

### EMISSIONS STATUS

x DATA CORRECTED TO REFERENCE  
(ANNEX 16 VOLUME II)

### CURRENT ENGINE STATUS

(IN PRODUCTION, IN SERVICE UNLESS OTHERWISE NOTED)  
- OUT OF PRODUCTION (DATE: - )  
- OUT OF SERVICE (DATE: - )

### MEASURED DATA

MODE	POWER SETTING (%F <sub>00</sub> )	TIME (minutes)	FUEL FLOW (kg/s)	HC	CO	NO <sub>x</sub>	SMOKE NUMBER
TAKE-OFF	100	0.7	1.462	0.05	0.54	30.90	16.0
CLIMB OUT	85	2.2	1.153	0.02	0.25	21.83	13.4
APPROACH	30	4.0	0.369	0.05	2.14	9.56	2.1
IDLE	7	26.0	0.113	1.10	25.59	4.60	2.1
LTO TOTAL FUEL (kg) or EMISSIONS (g)			478	204	4765	6875	-
NUMBER OF ENGINES				3	3	3	3
NUMBER OF TESTS				7	7	7	7
AVERAGE D <sub>p</sub> /F <sub>00</sub> (g/kN) or AVERAGE SN (MAX)				1.4	33.5	48.3	16.0
SIGMA (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				0.3	2.0	0.6	6.2
RANGE (D <sub>p</sub> /F <sub>00</sub> in g/kN, or SN)				1.15-1.67	31.2-35	47.7-48.9	8.9-20.2

### ACCESSORY LOADS

POWER EXTRACTION 0 (kW)  
STAGE BLEED 0 (% CORE FLOW)

AT All POWER SETTINGS  
AT All POWER SETTINGS

### ATMOSPHERIC CONDITIONS

BAROMETER (kPa)	97.6-98.5
TEMPERATURE (K)	277-293
ABS HUMIDITY (kg/kg)	0.0015-0.00628

### FUEL

SPEC	Jet A
H/C	1.92-1.93
AROM (%)	16.2-17.5

MANUFACTURER: CFM International  
TEST ORGANIZATION: General Electric Company  
TEST LOCATION: PTO, Ohio  
TEST DATES: 29/09/2005-23/03/2006

### NO<sub>x</sub> REGULATION PARAGRAPH

	2.3.2 c) (CAEP/4)
	2.3.2 d) (CAEP/6)
x	2.3.2 e) (CAEP/8)

### REMARKS

1. Ref. GE REPORT CR-2097/3 Rev1
2. Engine S/N 874-026/01, 778-024/01B, and 892-769/01
3. Also covers CFM56-5B3/3B1
4. Certification in accordance with Part III, Chapter 2, of Amendment 7 of ICAO Annex 16 Vol. II.
5. NO<sub>x</sub> levels in accordance with Part III, Chapter 2, 2.3.2 e) (CAEP/8)

Compliance with Fuel Venting requirements: x ('x' if complies, 'PR' if pre-regulation, '-' if information is not available)